Eschatology in the Anthropocene

Eschatology in the Anthropocene: From the Chronos of Deep Time to the Kairos of the Age of Humans

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Abstract

James Hutton invented 'deep time' through a reading of sedimentary rocks, and displaced anthropocentric chronology with a geocentric one. Some argue this 'new creation story' teaches modern humans humility and promotes greater care for life on Earth than the Jewish-Christian creation story, which they say underwrote human dominion. But the biblical creation-fall story is better understood as a warning to early-Holocene humans about the risks of over-reach in their powers to domesticate plants and animals that the new era of climate stability facilitated. Recognition of the era of the Anthropocene, the era of humanly generated climate instability, has an analogous rhetorical role, warning industrial humans of a potential new eviction from their Earthbound Paradise. But if the Anthropocene is a new story of creation and fall, what is the redemption story of this new era?

Scottish geologist James Hutton invented deep or geological time. He developed his theory based on long observation of soil erosion and rock strata in Scotland and was the first scientist to argue that soil erosion, combined with pressure from the ocean, create new layers of rock which over geological time are pushed up through the visible land surface by subterranean heat. His theory was

first presented at the nascent Royal Society of Edinburgh in 1785. He had worked as farmer and a mineralogist in Scotland for thirty years and had arrived at the conclusion that rocks were primarily formed from eroded soils that under pressure from the ocean turned into sedimentary rock, and by extrusions of magma from the Earth's hot inner core (Repcheck 2003). Since these processes could be seen to occur in the present, Hutton judged that their incremental effects must have taken millions of years to reproduce the arrangements of rocks presently visible on Earth. Against the reliance of his scientific contemporaries and predecessors on an intergenerational estimate of the beginning of time from the biblical record of the creation and succeeding generations, Hutton argued that only a vastly deep temporal history could have achieved the present state of which he could 'find no vestige of a beginning, no prospect of an end' (Hutton 1788). Time, and not a divine creator, had therefore produced the Earth as humans now observe it and hence, and even more controversially, it was 'vain to look for anything higher in the origin of the Earth' (Hutton 1788).

The principal evidence for Hutton's proposal was his observation of soil erosion on his farmland in the Scottish Borders. His other source of evidence was the veins of granite and other rocks that were visible in the midst of older sedimentary rocks. Hutton theorised these were molten rock thrust up by magma from deep below the Earth's surface that had subsequently cooled and hardened. His theory was most clearly evidenced at Siccar Point on the North Sea coast south of Edinburgh, where Old Red Sandstone (Devonian and 350-400 million years old) meets limestone (Silurian and 420-440 million years old) at right angles, creating a 'T' formation (Playfair 1822). Geologic 'unconformities', such as that at Siccar Point, and others he observed at Glen Tilt and Cumbria, were not individual instances of exceptional events but examples of the uniform operation of

Newtonian-style physical laws that operate in the present and have always so operated. Geologic 'unconformities' indicate the Earth as presently constituted is a living 'Earth system' which has been uniformly created, and is still being created, by living processes which over long time periods change its appearance and constituent parts.

Hutton's thesis was received with considerable scepticism since it contradicted the established scientific view that the Earth was no more than 6,000 years old. Only one geologist before Hutton had challenged traditional intergenerational chronology. The dating of the Earth at 6,000 years old originated in a theological interpretation of the first Hebrew creation story in Genesis 1 which described the creation of the Earth as having taken place over 'six days'. Another Hebrew text, Psalm 90.4, proposed that 'one day is as a thousand years' from a divine perspective and hence Jewish theologians writing in the Jewish Talmud in the second century of the Christian Era proposed that each day of creation correlated to a thousand years of human and creaturely history.

This chronology was adopted by Christian theologians Julius of Africanus and Eusebius of Caesarea in the second and third centuries of the Christian era (Hendel 2013). It was later adopted by early modern theologians, including Martin Luther in Germany, the English Bishop Ussher, and by historians. Luther and Ussher proposed only slight variations to Julius' chronology in order to keep the 'six millennia' extending beyond the then present into the near future (Fuller 2001).

Hutton's chronology was almost universally resisted, both for its departure from established geological science and chronology, and for its theological implications. Hutton was criticised for

sponsoring atheism, since his theory suggested that the Earth was the result of mechanical processes over long time periods and not of direct divine creative actions, as the biblical record was said to indicate. Hence not until the publication in the mid-nineteenth century of Charles Lyell's *Principles of Geology* was Hutton's chronology accepted, and opposition to it dispatched in scientific and most theological circles.

Hutton's deep time chronology not only displaced divinity from Earth history beyond its primeval beginning; it also displaced humanity. Although Nicolai Copernicus had argued that the Earth was not at the centre of the universe, as Ptolemaic cosmology had held, Copernicus did not challenge humanity's central place in Earth's history (Northcott 2014). Christian chronology from the second century of the Christian era had mapped human intergenerational history onto Earth history with only slight variations in calendrical enumeration for more than 1500 years before Hutton. It was therefore universally believed in Christendom that there were three ages of the Earth: the first was the era from the Creation to Christ (BC), the second was the era from the birth of Christ to the present and near future (AD), and the third was the eschaton which would herald the Last Judgement, and the return of Christ to the Earth to inaugurate 'a new heavens and a new Earth', as predicted in the New Testament Book of Revelation.

After Hutton the history of the Earth is divided into a much longer set of eras that had nothing to do with God, Christ or humanity, and which extend back over roughly 4 billion years. In all of these eras, apart from the Holocene, which roughly corresponds to BC and AD combined, humans were either completely absent or very epiphenomenal. However it is still the case that the Christian

division of human history and Earth history until the present into two eras - Before Christ and Anno Domini - remains culturally dominant. The two best known 'eras' in popular culture are still eras in which human history and Earth history are aligned, and the division between them remains the estimated date of the birth of Jesus Christ. The only concession to contemporary secularism is that the BC and AD nomenclature have been revised to BCE and CE where 'C' stands for 'Common' rather than Christ and E for Era. There are alternative faith-based calendars, but the BC/AD two era chronology is so influential that it is represented in astronomic clocks, digital computers, and printed and online encyclopaedias and history books. The enduring role of the birth of Christ in dividing human history into two calendrical eras may explain why a significant minority of individuals still leave school in Western Europe, and the United States, believing the Earth is only 10,000 years old.

Rehumanising Deep Time

Hutton's deep time chronology birfurcated Earth and human history and the cultural implications of this are not fully appreciated by those who propose that a 'new universe story' that resituates human consciousness in deep time will facilitate greater identification between humans and the rest of the 'natural' world than the old intergenerational creation story (Berry 1999). Knowledge of deep time, while it may provoke wonder at the 'abyss of time' that Hutton opened up, also generates a sense of the epiphenomenal character of human history as compared to the history of life on Earth. If the passing of human generations, and the birth of children and grandchildren, is so peripheral to Earth

history, it may be said to be unreasonable to argue, as climate scientists and some evolutionary biologists now do, that humans are capable of significantly influencing the course of natural history.

Hence Hutton's deep time chronology underwrites the refusal – particularly prominent in Anglo-Saxon cultures – to acknowledge that humanity may be passing critical thresholds in her influence on species and the climate. For deep time futurists, twenty-first and twenty-second century anthropogenic climate change represents a mere blip in the future history of the planet, and decisions about fossil fuel use or deforestation have minimal import in this longer view (Stager 2011). Hence the claim that geological time provides the basis for a new sacred universe story that promotes greater care for the Earth than the intergenerational story from Adam and Christ to the present may be erroneous. On the contrary the deep time frame indicates that human beings have no influence on the history or future of life on earth and hence, as climate science refuseniks argue, it is foolish to propose they should take responsibility for the future of a planet in whose history neither they nor their gods have any significant agency (Sideris 2013).

Instead of looking back into deep time to stimulate ecological consciousness, some Earth scientists argue that the best way to provoke care for the future is to remap Hutton's geological history onto the recent and near future history of humanity. Paul Crutzen, Will Steffen and others propose that scientists name the recent inter-generational history of increased anthropic influence on the Earth system as a new geological epoch which they call the Anthropocene (Crutzen and Stoermer 2000). The date of 1784 is chosen for the commencement of this new 'age of humans' because the widespread adoption of James Watt's condensing steam engine facilitated the large-scale mining of

coal and drove the factories and workshops, ships and trains of the industrial revolution. Atmospheric deposits from the vast scalekjjj of burning of the subterranean deposit of sunlight produced a global change in the 'vast machine' of the Earth's climate because it altered the heat exchange between the Earth's surface and the sun. By trapping more of the heat of the sun reflected from the Earth's surface within the atmospheric envelope of the planet humanity has since 1784 displaced other terrestrial and extra-terrestrial global change generators - such as the amount of solar activity or volcanic eruptions - as the dominant progenitor of global changes within what Hutton first called the Earth system.

Pressure from Earth scientists for the recognition of a new geological era involves a judgment about scientific rhetoric. Crutzen and others intend that consciousness of this new era will assist an urgent transition to a more responsible shaping of Earth's habitat (Crutzen and Stoermer 2000). The first two hundred years of the Anthropocene, if its beginnings are coterminous with the age of steam (Robin and Steffen 2007), is the period in which humanity's pursuit of scientific progress through taking charge of Earth's carbon store unintentionally changed the atmosphere. Some call this the 'bad anthropocene' (Szerszynski 2012), although atmospheric change was an unforeseen double effect of coal and oil based development so it is unreasonable to consider this morally bad until consensus was reached on climate science in the 1980s. As Earth science educates the public and politicians about the increase in human powers over the Earth system, scientists hope that humans will transition to a more responsible exercise of those powers. And advocates of the Anthropocene intend that its, recognition will sensitise modern humans to their moral obligations to future generations and to other creatures. Hence this ethics for the Anthropocene represents a revival of

human duties to other species and to future generations that were attenuated in the industrial 'age of machines'.

Eco-modernists and libertarians argue that if the Anthropocene is indeed a new geological epoch, then it is merely the extension of the powers over life on earth which the stable and relatively warm climate of the Holocene gave to humans in the development of agriculture, and its influence over animals, plants and soils (Ruddiman 2005). What some call the 'good anthropocene' on this account represents an era in which technologically enabled humans achieve the maximal freedom to shape life processes and Earth's habitats after their aspirations and desires (Nordhaus and Shellenberger 2007). For others recognition of the 'good Anthropocene' paves the way for new forms of Earth engineering by an empowered global technocratic elite. In this perspective human beings are now 'in the engine room of the Earth System' and must intervene in whole planet processes to maximise human welfare and reduce any harmful Earth system effects from human activities such as the use of fossil fuels (Schellnhuber 1999). Since the 1980s scientists have been conscious that there is no part of the Earth that is untouched by industrial engineering, and as humanity is now capable of transforming the planet 'self-conscious intelligent management of the Earth is one of the great challenges facing humanity as it approaches the 21st century' (Allenby 1999). Humanity's new agential control over the Earth system requires a more purposeful re-engineering of Earth systems. In this perspective humanity needs to form clear intentions about desired planetary and climate states, and then use Earth system engineering and global meteorological governance to bring them about. Given the failure of carbon politics to mitigate fossil fuel burning and deforestation, a

growing minority of natural scientists, along with engineers from the oil and gas industries, propose that it will be necessary intentionally to engineer the Earth system to reduce the heating potential of present and future greenhouse gas emissions (Hamilton 2013).

Both ecomodernists and would-be geoengineers describe the Anthropocene as a new evolutionary moment – an anthropic epiphany – in which human beings are at last in the driving seat both of human and natural history. In this vein the Anthropocene fosters not humility but arrogant hubris of the kind that recalls the cosmological assumptions of the Baconian vision of science as redemption. But a third approach suggests that the Anthropocene, far from enhancing human intentionality and agential interaction with the Earth, threatens to reduce it and hence to undermine the modern scientific imaginary of the human control of nature. If rising sea levels inundate cities and ports, and droughts destroy much presently viable cropland, the Anthropocene will turn out to be an era in which human power over nature is greatly reduced. In these circumstances nature will have wrested back control over the boundary between land and sea from human defences, and over agricultural lands from the irrigation schemes, terracing and crop rotations of farmers.

Contestation over the implications of the Anthropocene raises questions about its cultural meaning. For Schellnhuber the passing of Earth from the Holocene to the Anthropocene represents a second Copernican revolution (Schellnhuber 2009). The Copernican turn decentred humanity from the cosmos, and reduced the perception of human influence over the Earth and the skies, a displacement that was deepened by the Huttonian deep time narrative. Whereas premodern humans thought of the weather as something they could influence, or which carried messages for them from the ancestors and heavenly beings, moderns inhabit a mechanistic universe in which the heavens reveal no meaningful messages about human behaviours, and in which human behaviours do do not affect the climate (Northcott 2014). Recognition of the Anthropocene therefore involves acknowledgment that

the refusal of premoderns to split nature from culture was wise, and that after a mechanistic interlude of five hundred years the 'age of humans' brings 'natural' and 'human' history back together again (Chakrabarty 2009). Recognition of the Anthropocene also recovers the intergenerational character of historiography - both natural and human - before Hutton. This has a particular cultural resonance with the ethical description of efforts to mitigate anthropogenic climate change in terms of duties to future generations who will inherit a less stable, less fertile and less biodiverse Earth habitat if fossil fuel use and deforestation are unabated (Page, 2005; Hansen 2009).

Anthropocene as Apocalypse

Earth scientists' advocacy of the recognition of the Anthropocene is of a piece with a larger turn to apocalyptic language - the 'end of nature', 'Earth without us', the 'storms of my grandchildren', the 'revenge of Gaia' - in environmental discourse (McKibben 1989; Weisman 2008; Hansen 2009; Lovelock 2010). The Greek word apocalypse means 'unveiling' and the announcement of the Anthropocene is intended to reveal that because of their greatly extended technological powers, and the range and scale of their interventions *Homo industrialis* has become a geological force who is changing life on earth through a range of Earth System level interventions. The announcement of the Anthropocene as an epoch which heralds ecological cataclysm unveils a future in which geologists, coming upon sedimentary strata from 1768 onwards, will be able to identify a stratigraphic 'golden spike' which indicates a range of anthropogenic modifications in the atmosphere, biota, oceans, soils and species of the planet. These changes will manifest in the fossil record which will reveal a marked rise in species extinction, 100-1000 times faster than the background rate and the global distribution of exotic species into non-native ecosystems, and in the prevalence of artificial organic molecules including polyaromatic hydrocarbons and carbon isotopes

from fossil fuel combustion in the atmosphere and marine sediments, and artificial radionuclides from atomic bomb tests.

The claim that the industrial revolution commenced a new geological epoch is closer to the literary genre of science fiction than of natural scientific writing. Like Asimov's *I Robot* or Piercey's *Woman on the Edge of Time* the Anthropocene narrative is an 'archaeology of the future' which involves the attempt 'to transform our own present into the determinate past of something yet to come' (Jameson 2006). The science fiction character of the term Anthropocene was demonstrated in Szersynski's multimedia presentation entitled 'The Onomatophore of the Anthropocene' at the Thinking the Anthropocene conference in Paris in 2013 (Szersynski this volume). Szersynski depicted a future 'Commission on Planetary Ages' that deliberates on the human claim and agrees to its designation. Science fiction adopts a different temporal frame to most literature in that it describes how humanity, Earth and species developed from the perspective of an imagined future, so the near future becomes the imaginary past. This approach is often used in environmental literature, and most influentially in *Silent Spring*, in which Rachel Carson looked back from a potential future where 'no birds sing' to the political, chemical and biological events and processes that had led to that novel situation (Carson 1962). The book, perhaps the most influential environmental text ever written, provoked a mass environmental movement in the English speaking world, which led to a political and regulatory thrust against pesticides and other synthetic chemicals which threatened species extinction and human health. In the United States the book prompted to the establishment of the Environmental Protection Agency in 1970. In Europe national-level regulation of synthetic chemicals was underwritten by the establishment of the European Chemical Agency and REACH. But there has been no equivalent concerted international action against

climate changing emissions of carbon dioxide from burning fossil fuels, or against the large scale industrial interventions which are leading to the sixth wave of species extinction in earth history (Leakey 1996); hence the mobilisation, again, of apocalyptic discourse, though this time at the Earth system level.

Environmental apocalyptic takes up the literary imaginary and rhetorical timbre of Jewish and Christian apocalyptic in secular mode (Buell 2003). The genre of apocalyptic emerged in the historical context of the Babylonian exile of Israel. The gift of the land is described in the history books of Israel as having occasioned the redemption of Israel's ancestors from imperial slavery in Egypt, and opened up the possibility of a novel covenantal and federal polity in which distributive justice and political participation were underwritten by land sharing arrangements and legal restraints on debt and economic inequality (Northcott 2013). Exile from the land was a momentous rupture with this redemptive narrative and its legal and political instruments. While the Exile seemed to close down the possibility of future redemption, the Hebrew prophets discerned in the cataclysm a new revelation which transformed the Israelite story into a story about the potential redemption of all peoples, and potentially all species in Isaiah's imaginary of a peaceable kingdom where wolves and lambs 'lie down together' (Isaiah 11 6).

John of Patmos took up this apocalyptic reading of history in the context of the harsh persecution of Christians by Nero in the first century of the Christian Era. In the Book of Revelation John described persecution as herald of a near-term cataclysmic end of the the Roman-dominated world order. He prophesied that those who remained faithful to the message and worship of the Incarnate Christ through the coming armageddon would be vindicated at the end of time as the redeemed

inhabitants of a ‘New Heaven and a New Earth’ in which peace would reign between the nations and creatures and peoples would be redeemed from destruction. The concluding and paradigmatic image of Revelation is of the ‘tree of life’, a reference that recalls the Exile of Adam and Eve from the Garden of Eden. In the restored Earth ‘the river of the water of life’ flows from ‘the throne of God and of the Lamb through the middle of the street of the city’ and there grows ‘on either side of the river, the tree of life with its twelve kinds of fruit’ and ‘the leaves of the tree were for the healing of the nations’ (Revelation 22 1-2).

In Christian history the vision of a New Heaven and New Earth, and peaceable relations between peoples and species, shaped the imaginary of desert ascetics who ministered to lions and were ministered to by wolves at the mouths of their hermetic caves (Bratton 2003). Over centuries monastic gardens, herbariums, hospitals and universities gradually transformed human interactions with nonhuman creatures. Through the domestication of animals, bee-keeping, herbal medicine, plant breeding, wetland drainage, wind and water mills, Christian monks fostered new bodies of knowledge and new institutions and practices that underwrote progress in agriculture, arts and crafts, in human health, in scientific knowledge and technological capacities, and in Earth care (Ovitt 1987). This progress was underwritten by the apocalyptic imaginary of Revelation and the restoration of Paradise, so that for the Elizabethan Renaissance scholar Francis Bacon the scientific method had the potential to usher in a ‘New Atlantis’ and a ‘Novum Organum’ in which human life would be redeemed from hunger, illness, plague and suffering (Bacon 1844).

In promoting the idea of divine Providence as leading history towards the restoration of Paradise on earth, Christian eschatology underwrote belief in discoverable scientific laws of a mechanistic universe, and in the human capacity to use scientific knowledge to sustain agricultural, economic and, technological progress (Schwartz 2000). But the eschatology of the Anthropocene indicates an era in which human arts and technologies have reached a crescendo of power and influence over the Earth system so as to destabilise Earth System relationships between humans and other creatures. This new era indicates not the perfection of nature but a new and even more fateful Exile from Paradise than the ancestral journeys from Eden to Egypt, or from Jerusalem to Babylon. In this new Exile masses of humans will die from drought, hunger or plague, while the lucky few will inhabit technologically advanced towers on high ground near the former ice-covered Polar regions, or they will seek life support elements such as water and carbon on other planets as the Earth overheats and the land area is variously flooded or turned to desert, and gradually becomes uninhabitable.

The announcement of the Anthropocene represents a portentous reversal of Christian apocalyptic. The new epoch's apocalyptic timbre is closer to that of nuclear winter than the New Heaven and New Earth of Christian salvific eschatology, and indeed the first herald of the Anthropocene, Paul Crutzen, had earlier worked on the Earth system consequences of large scale thermonuclear war (Crutzen and Birks 1982). In the New World of the Anthropocene no heavenly being will intervene to redeem the humans from Exile, and wolves will not make peace with monks. In the Anthropocene only large-scale changes in human interventions in the Earth system, and in particular the planet-wide substitution of wind, water and solar power for fossil fuels, and the replanting of forests, can stave off ecological apocalypse. But the announcement of the Anthropocene, and the accumulation of scientific evidence of the biogeochemical signals that herald its coming, have yet to unleash such large scale changes.

The Anthropocene as Kairos

The Greeks have two words for time, Time as chronos indicates the successive cyclical passing of day and might, moment by moment, generation by generation; time as kairos indicates moments in time which herald great or sudden change, or the need for change, in the flow of events and the passage of history. This distinction between chronos and kairos is evident in a discussion Christ had with the rabbis about the difference between weather signals and the 'signs of the times':

The Pharisees and Sadducees came, and to test Jesus they asked him to show them a sign from heaven. He answered them, 'When it is evening, you say, "It will be fair weather, for the sky is red." And in the morning, "It will be stormy today, for the sky is red and threatening." You know how to interpret the appearance of the sky, but you cannot interpret the signs of the times. An evil and adulterous generation asks for a sign, but no sign will be given to it except the sign of Jonah (Matthew 16 1-4).

In this passage the cycle of morning and evening, and the seasonal cycles of weather, represent time as chronos while the phrase 'signs of the times' represents time as kairos, which is elsewhere described as the 'time of judgement' and 'the time for repentance' (Smith 1969). For the Christians of the first and second centuries the Incarnation of Christ inaugurated a new messianic era in which the promised redemption of all peoples, and species, had moved close, and this was symbolised in the nativity story of Christ being born among animals as well as princes. The birth of Christ, and the events of his public ministry, crucifixion and resurrection, therefore represented a kairos moment in which salvation had come near, and for which humans could ready themselves through repentance and a new way of life in the time that remained before the end of time.

The Christmas festival, celebrated at the time of the Northern winter solstice, represents an annual, chronological reminder of the intergenerational reading of history as kairos and not merely as chronos. In every heart, in every year, the Christ child seeks a way in as the author of the carol 'Once in Royal David's City' suggests. But in the post-Christian culture of capitalist consumerism Christmas has morphed from the festival of the Incarnation of light in cosmic darkness into a fossil fuelled festival of consumption where neon lights and LCD screens displace candles and incense. This ritual turn also symbolises the bifurcation of human history from natural history that Hutton's invention of deep time inaugurated. After Hutton the birth of Christ is no longer the era-defining moment Christians once imagined. Instead human beings inhabit just a few millennia of a 4.5 billion year history and successive eras are brought about by Earthly and heavenly agencies such as volcanoes and solar activity. Era after era followed each other for billions of years before human births and deaths, human intents or purposes. Against this predominantly non-human chronos the recent fifty year expansion in human consumption of fossil fuels, fresh water, forests, minerals and rocks, known as the Great Acceleration (Steffen et al 2007), represents a mere cosmic blip in the abyss of time. Hence climate denialists and Gaian realists are both comforted by the chronos of deep time.

It is perhaps inevitable that natural scientists, inheritors of the Baconian paradigm of nature as machine, would seek to reunite human and Earth history by the discovery of an apocalyptic kairos moment not in the birth of a child but the invention of a machine, Watt's condensing steam engine. It is however doubtful that such an artificial rhetorical device will have the cultural power to reunite the histories of humans and the Earth. The mechanistic and stratigraphic science fiction of the Anthropocene lacks poetry, and it lacks hope. But the announcement of the Anthropocene

resembles other kairos moments and it therefore contains a salvific possibility; in near-term repentance, in concerted human efforts to reduce deforestation and fossil fuel extraction, and to 'transition' to a mode of civilisation that lives off the renewing capacities of the Earth System, and ends unsustainable consumption. Analogously the failure to embrace this possibility is often linked in climate apocalyptic, as in the film Age of Stupid, to the rhetoric of the judgement of future generations on present-day inaction to prevent the coming climate cataclysm. Here again Anthropocene apocalyptic mirrors that of the New Testament. Christ's parable of the Last Judgement at the end of time distinguished between two peoples: on the right hand of God were the 'sheep' who had used their time on Earth to relieve the suffering of their fellow humans, while on the left hand were the 'goats' who had ignored it (Matthew 25 31-46). The Anthropocene is already revealing itself as a time of increasing suffering: for Bangladeshi fishers, Syrian and Somali farmers, arctic bears and tropical salamanders. Creaturely and personal suffering will increase in the near-term of the Anthropocene.

The announcement of the Anthropocene represents recognition that this increase in suffering is a kairos moment, which requires urgent action to reduce industrial humanity's impacts on the Earth System and hence the suffering of future persons and species. In this vein, the Anthropocene may be said to recover, after a 200 year interlude a historical narrative of human and Earth history which acknowledges their mutually constitutive relationship, and a narrative moreover in which, as in New Testament history, future generations will act as judge on those who inhabit the present moment and fail to read and respond to the signs of the times.

On the other hand, and more hopefully, the Anthropocene may also be said to facilitate a recovery of an ethic of love between persons who are distant across space or time. The Christian ethic of 'stranger love' was encapsulated in Christ's paradigmatic parable of the Good Samaritan who rescued the stranger by the wayside caught among thieves. And from this parable arises the concept of third party responsibility for injured persons, or tort in Western legal history (Bankowski 1994). Large-scale interventions to reduce present and future third party harms from industrial activities mediated by the Earth System are more likely to have ethical suasion when they are described as hopeful and transformative responses to the Kairos moment of the announcement of the Anthropocene, as works of love for future generations and species, and not as props to the chronological but unsustainable growth of the present human economy into the near-term future.

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